

# EXPLORATION TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

March 31, 2004

TO: Internal File

FROM: Peter H. Hess, Environmental Scientist /Engineering, Inspector, Team Lead

RE: Minor Coal Exploration – SITLA Muddy Tract, Canyon Fuel Company, LLC.,  
SUFCO Mine, C/041/002, Task #1835

## **SUMMARY:**

Ark Land Company, which is a subsidiary of Arch Coal, Inc. submitted an application to permit one helicopter assisted coal exploration hole to evaluate seam thickness and coal quality relative to the School and Institutional Trust Lands Administration Muddy Tract lease area. The tract is located in Sevier County, ten miles northwest of the town of Emery, Utah, in Townships 20S and 21S, Range 5 East. The tract contains 2, 553.84 acres and is relevant to the Canyon Fuel Company SUFCO Mine.

## **EXPLORATION TECHNICAL ANALYSIS:**

### **COAL EXPLORATION**

Regulatory Reference: R645-200.

### **SCOPE AND RESPONSIBILITIES**

Regulatory Reference: 30 CFR 772.1; 30 CFR 772.10; 30 CFR 772.11; R645-100-400; R645-200-100; R645-200-200; R645-201-100.

### **Analysis:**

The coal reserves and surface access are located in Sevier County, Utah, in Townships 20S, Range 9 East and 21S, Range 9 East. As noted above, coal ownership is by the State of Utah, School and Institutional Trust Lands Administration. Surface ownership where the drilling

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activities will occur is by the U.S. Department of Agriculture, U.S. Forest Service, Manti La Sal National Forest.

**R645-301-200.120, -200.121; Coal Exploration Categories**

As noted above, all coals relative to this coal exploration application are owned by the State of Utah, School and Institutional Trust Lands Administration, and as such are not Federal coal. 43 CFR Parts 3480-3487 is not applicable to this coal exploration application.

**R645-301-200.122; Minor Coal Exploration**

Page 5, paragraph five of the coal exploration application (Task ID#1835) states the following, "The only coal to be removed during exploration activities will be cores. Cores will be 1.4 inches (BQ) in diameter. Given an approximate projected thickness of 7 ft. for the Upper Hiawatha seam and 12 ft. for the Lower Hiawatha seam, approximately 20 to 40 pounds of coal will be removed". Forty pounds is a minimal amount compared to "the less than 250 tons" stipulated by R645-301-122. This coal exploration application can therefore be classified as "minor".

**Findings:**

The minimum regulatory requirements of this section have been met. This is a minor coal exploration application.

**REQUIREMENTS FOR NOTICE OF INTENTION TO CONDUCT MINOR COAL EXPLORATION**

Regulatory Reference: 30 CFR 772.10; 30 CFR 772.11; R645-100-412; R645-201-200.

**Analysis:**

The permittee's application intends to permit one helicopter assisted coal exploration borehole for the Muddy Tract lease. The volume of coal to be extracted for analysis is minimal compared to the less than 250-ton requirement, which classifies it as a minor coal exploration application. The application has been submitted to the Division for review, which meets the requirements for notices of intent to conduct minor coal exploration. The surface of the Muddy Tract, which is owned by the U. S. Department of Agriculture, Manti- La Sal National Forest, has not been designated as being unsuitable for surface coal mining operations under R645-103. One copy of the application has been forwarded to the Forest Service via the DOGM permitting process as part of the application review.

This information meets the minimum regulatory requirements of R645-301-210.

**R645-201-223** requires that the application contain a narrative and a map describing the exploration area and indicating where the exploration will occur. Page 3, section R645-201-223 contains the following legal description of the area where the exploration will take place. This is described as follows:

T.20S., R.5 E., Salt Lake Base and Meridian  
Sec. 32, S1/2, S1/2  
Sec. 33, S1/2, S1/2.

T.21S., R.5E., Salt Lake Base and Meridian  
Sec. 4, all  
Sec. 5, all  
Sec. 7, all  
Sec. 8, all  
Sec. 9, all,

Containing 2,553.84 acres.

The narrative on Page 3 indicates that the entire lease is located in Sevier County, with elevations in the exploration area ranging from 8,400 to 9,100 feet. The major drainages in the area are Cowboy Creek and Muddy Creek. Map 2 (which is included in the application) shows the proposed borehole location and the Forest Development Roads that will be used to access the area. The application states on Page 7 that Forest Service road FDR 007 will be used for equipment access to the exploration site. FDR 044 will provide access to the proposed tank/pump location and staging area/landing zone location.

**R645-201-224** requires that the application contain “a statement of the period of intended exploration”. This is provided on page 4, section R645-201-224 of the submittal. The permittee anticipates that the drilling activities will start during the third week of July 2004. Four weeks will be required to complete the well, from preparing the Forest Development Roads to completely reclaiming the exploration site. As noted in the application, five more exploration holes are anticipated, but they will be drilled on the BLM administered area of the Muddy Tract.

This information is adequate to meet the minimum regulatory requirements of this section.

**R645-201-225** requires the following from a coal exploration application:

- 1) A description of the method of exploration to be used;
- 2) The amount of coal to be removed;

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- 3) The practices that will be followed to protect the area from adverse impacts of the exploration activities;
- 4) (The methods to be used) to reclaim the area in accordance with the applicable requirements of R645-202.

Page 5, paragraph two of the application describes the method of exploration to be used. “Drilling will be accomplished utilizing continuous core drilling techniques. Drilling will involve a heli-portable, skid mounted core rig capable of drilling 2000 feet.” “...necessary support equipment such as a 2000 gallon poly water tank, drill rod trays, fuel tank, portable mud tanks, a heli-portable logging unit, etc. The drilling procedure will be to continuously core to total depth.”

The amount of coal that will be removed by the exploration process is described on Page 5, paragraph five. “The only coal to be removed during exploration activities will be cores. Cores will be 1.4 inches (BQ) in diameter. Given an approximate projected thickness of 7 ft. for the Upper Hiawatha seam and 12 ft. for the Lower Hiawatha seam, approximately 20 to 40 pounds of coal will be removed.” This meets the requirement listed by (2) above.

Practices that will be implemented to protect the area from adverse impacts include the following, which are listed in APPENDIX B in the application:

- 1) The potential for water pollution will be minimized by keeping pollutants away from the drill hole and in their containers. Material used during drilling operations will be selected to be as non-polluting as possible. All spills of polluting materials will be removed from the area and properly disposed of.
- 2) No mixing of surface and ground waters is possible because all drill sites will be above perennial and ephemeral stream drainages.
- 3) Portable mud tanks will be used. Drill fluids and/or cuttings will be hauled off Forest Service land and disposed of properly. Page five of the submittal also states the following; “all drilling fluids are contained within portable tanks. Drill cuttings are transferred from the tanks to heli-portable barrels for helicopter transport away from the drill site. No drilling fluids, oil and grease, or diesel fuel will be allowed to contact the topsoil.”
- 4) No mud pits will be constructed for this exploration.
- 5) Relative to the procurement of water for drilling, page 5 of the notice of intent states the following; “water for drilling and road watering will be pumped from North and South Forks of Quitcupah Creek or from Muddy Creek (locations shown on Map 2) into a 4000 gallon water truck and transported to an 18,000

gallon frac tank located along Forest Road 044 as shown on Map 2. A Triplex pump will be located at that site as well for pumping water to the drill site. Water will be pumped via 1, 2, and 3 inch HDPE waterline. All necessary arrangements will be made for water usage, including agreements with water rights owners in each of the drainages and the proper Temporary Water Change approval from the Division of Water Rights. Waterline will be placed and removed via horseback, helicopter, or on foot.” According to the applicant response stated on page 13, of the **STANDARDIZED STIPULATIONS FOR COAL DRILLING OPERATIONS**, item 12, the volume of water necessary for drilling and roadway dust suppression for this minor coal exploration activity is estimated to be 0.5 acre-feet (163,000 gallons). **Ark Land must provide copies of the water right(s), and / or water use agreement(s), and temporary change of water from the Utah Division of Water Rights to the Division as part of this application prior to receiving a recommendation for approval of this minor coal exploration application.**

Other methods that will be utilized to minimize adverse impacts to the area include the following:

- 1) Waterline will be placed and removed via horseback, helicopter, or on foot.
- 2) No road construction is planned for this project. Access to the drill site will be via helicopter, horseback, or on foot.
- 3) No actual drill pad will be constructed for the project; soils will be protected by placing the drill-mounting sub-frame on brattice cloth (approximately 8 X 10 foot area) to protect soils.
- 4) The area will be leveled for the drill mounted sub-frame utilizing hand tools only.
- 5) Reclamation will be accomplished utilizing hand tools only, as major cuts and fills will not be necessary to construct and/or reclaim the site.

### **Findings:**

Additional information is necessary prior to the Division granting a recommendation of approval for this minor coal exploration.

**R645-301-731.100**, Ark Land must provide copies of the water right(s), and / or water use agreement(s), and temporary change of water from the Utah Division of Water Rights to the Division as part of this application prior to receiving a recommendation for approval of this minor coal exploration application.

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## COMPLIANCE DUTIES

Regulatory Reference: 30 CFR 772.13; R645-202.

## OPERATIONAL STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-100.

### Analysis:

#### Roads

R645-202-232 Roads / Associated Performance Standards. “All roads...used for coal exploration will comply with the applicable provisions of:

- 1) R645-301-358; “the operator will, to the extent possible...minimize disturbances and adverse impacts on fish, wildlife, and related environmental values and will achieve enhancement of such resources where practicable”. The single exploration hole being proposed by Ark Land Company is located in Section 32 of T.20 S., R.5E., Salt Lake Base and Meridian. The coal is owned by the State of Utah, School and Institutional Trust Lands Administration. The surface management agency is the U.S. Department of Agriculture, USFS, Manti La-Sal National Forest and the Lake National Forest. All exploration activities will occur on Manti La Sal surface; the only activity involving the Fish Lake National Forest is use of Forest Development Roads.
- 2) R645-301-512.250; the minor coal exploration application contains the following information regarding access to the proposed single site; 1) Page 7 of the application indicates that existing Forest Development Roads will be used to provide access to the proposed site. Pages 4 and 5 indicate that gravel will be placed on the existing roads to improve their condition for the exploration vehicles as needed. Grading will also be performed to smooth the surfaces and eliminate roadway ruts. Thus, all road improvements will remain. Page 7 of the minor coal exploration application, section R645-202-232 indicates that no (new) road construction is being planned for this project. All exploration sites will be accessed via existing roads. The requirements for P.E. certification are not necessary, as no new roads are to be constructed.
- 3) R645-301-526.200, Utility Installation and Support Facilities. The requirements of this regulation as they relate to roads associated with minor coal exploration activities are that the application must include a utility installation description which states that all coal mining and reclamation operations will be conducted in

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a manner which minimizes damage, destruction or disruption of services provided by oil, gas, water wells, oil, gas or coal slurry pipelines, railroads, electric and telephone lines, water and sewage lines which pass over or under or through the permit area unless otherwise approved by the owner of those facilities and the Division. There will be no new roads constructed as part of this minor coal exploration application, thus, there should be no impact to any of the aforementioned through road use. The exploration site itself will not be located such that it would impact any of the aforementioned. As far as this minor coal exploration submittal is concerned, it is believed that there are no facilities as described within the exploration area. However, if that is the case, the minor coal exploration application must so state that is the case. If that is not the case, then the permittee must address the requirements of R645-301-526.200.

- 4) R645-301-527.100, The plan must classify each road. This requirement is interpreted to mean that any new roads that are to be constructed as access to the minor coal exploration sites must be classified as primary or ancillary. As previously noted, there is to be no new roadway construction which would require vegetation grubbing, topsoil removal and storage, establishment of grades, and drainage, as well as reclamation of the accesses. R645-301-527.100 is not applicable to this minor coal exploration application.
- 5) R645-301-527.230; A maintenance plan describing how the roads will be maintained throughout their life to meet their design standards throughout their use. Page 5 of the application states the following, "Repair of Forest Development Roads will include hauling of gravel to fill rough areas on bedrock ledges and grading rutted areas". Although this maintenance plan may seem adequate, it needs an additional commitment from the applicant to control fugitive dust on the access roads via roadway watering. This commitment is contained within the Forest Service Stipulations relative to Road Use permit, (See Page 16, item 4, Road Use Stipulations, APPENDIX A). The same commitment must be made within the minor coal exploration application to meet the requirement of minimizing adverse effects to fish, wildlife, and related environmental values (R645-301-358).
- 6) R645-301-527.240; A commitment that if a road is damaged by a catastrophic event, such as a flood or an earthquake, the road will be repaired as soon as practical after the damage has occurred. The SUFCO Mine mining and reclamation plan contains this required commitment in Chapter 5, Engineering, page 5-50 and 51. Although this minor coal exploration application does not contain this specific commitment, the permittee is fully aware that it is in their best interest to cooperate fully with the surface management agency (the USFS) to ensure that the intent of this regulation is met.

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- 7) R645-301-534.100; Roads will be located, designed, constructed, reconstructed, used, maintained, and reclaimed, so as to... The minor coal exploration application has generally met all of these requirements. No new roads will be constructed; therefore, the location, design and construction requirements of this regulation are not applicable. The existing Forest development roads (FDR's) will be utilized to provide all access to the exploration sites. Use and maintenance commitments are in place for the existing roads to meet the previously mentioned requirements. None of the roads, nor any improvements made to the existing roads will be reclaimed, as confirmed in the minor coal exploration application, and the Special Coal Lease Stipulations included as APPENDIX A, page 15, which are administered by the United States Forest Service.
- 8) R645-301-534.200; "To ensure environmental protection and safety appropriate for their planned duration and use, including consideration of the type and size of equipment used, the design and reconstruction of roads will incorporate appropriate limits for grade, width, surface materials, and any necessary design criteria established by the Division." As previously noted, all access roads to the exploration sites are in place as Forest Development Roads. No new roads will be constructed. The established roads have held up under large trucks for many years. If grades or traction conditions have been poor in the past, heavy machinery access has been provided by pulling the equipment to its location with large dozers. The applicant is fully aware that it is responsible for all damages to Forest Service property, (See page 14 of APPENDIX A, Special Coal Lease Stipulations). The terrain in the exploration area is rugged, and varies in elevation "from 8,400 feet to 9,400 feet", (See page 3 of the application). Thus, the requirements of 534.200 are not applicable to this submittal.
- 9) R645-301-R645-301-534.300, Primary Roads. This regulation is not applicable to this submittal.
- 10) R645-301-542.600. Reclamation of Roads not considered as part of the approved post Mining land use. This regulation is not applicable to this minor coal exploration application. All roads in the exploration area are owned by the United States Forest Service, and as such, shall be left in place.
- 11) R645-301-742.410 et al. through 742.420 et al. Drainage and Sediment Control. The application does not contain any description of methods which may need implementation to control drainage or prevent to the extent possible additional contributions of suspended solids to stream flow. Map 2 (contained in the submittal) shows the Forest Development Roads in the exploration area. Page 5,

paragraph 6 of the application states that Forest Development Roads 007 and 044 will provide access to the staging area and storage tank location. The application states, "the skid mounted rig is transported by flatbed trailer to the staging area/landing zone". The permittee needs to specifically identify any improvements that are necessary to improve drainage and/or minimize additional contributions of suspended solids to associated drainages.

### **Topsoil**

**R645-202-233**; Page 6 of the application states that only minor excavation of the topsoil will be required for the leveling of the drill subframe and drilling equipment. "Some removal of grass and shrubs may be necessary" to accomplish leveling. "No trees will be removed". Soil accumulations will be kept in close proximity to their original locations, for ease of replacement during the reclamation process. "Upon completion of the hole, all hand excavations will be filled into original contour...". As only small amounts of soil will be removed by the hand excavation of the pad area, the requirements of R645-202-233 are not applicable to this helicopter assisted minor coal exploration.

### **Diversions of Overland flows and streams**

**R645-202-234**, Page 6, paragraph 3 of the application states that "there will be no diversion of overland flows". This regulation is not applicable to this minor coal exploration application.

### **Findings:**

The application is deficient in that the following coal rules must be addressed:

**R645-301-525.200**, Utility Installation and Support Facilities. The applicant must state whether or not any major utilities pass over, under or through the exploration area, and whether or not any use of roads, or the development of the coal exploration site may damage or disrupt any service of the utilities described in R645-301-525.200.

**R645-301-527.230**, Road Maintenance Plan. The minor coal exploration application needs a commitment included as part of the road maintenance plan to minimize fugitive dust, in order to minimize effects of exploration to fish, wildlife, and related environmental values.

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**R645-301-742.410 et al. through 742.420 et al.** Drainage and Sediment Control. The application must specify any improvements that are necessary to any drainage pattern, as well as improvements that are necessary to minimize additional contributions of suspended solids to the associated drainages.

## **RECLAMATION STANDARDS**

Regulatory Reference: 30 CFR 772.13; R645-202-200.

### **Analysis:**

#### **Approximate original contour**

**R645-202-241**; all work relative to site preparation will be performed utilizing hand tools. Thus, there will not be any large cuts or fills necessary to prepare the site. Page 6 of the application states the following, “upon completion of the hole, all hand excavations will be filled in to original contour, all equipment will be removed, and all trash will be hauled away”.

#### **Boreholes**

**R645-202-243**, Reclamation of Exploration Holes. The applicants submittal commits to the following on pages 7 and 8; “upon completion of drilling, the hole will either be plugged with a cement or cement/bentonite slurry to its full depth, or a water monitor well will be constructed.

Any cement or bentonite which is spilled during the well plugging process will be cleaned up and removed from the exploration area by placing the waste in barrels and transporting them from FS lands by helicopter.

If a monitor well is constructed, the collar of the monitor well will be identified as to hole number and operator. In either case, a brass tag will be placed at the top of the drill hole stating the operators name, drill hole number, and legal description. If the hole is plugged, the tag will be placed in the cement at ground level”.

#### **Facilities and Equipment**

**R645-202-244**; Prompt Removal of Facilities and Equipment. The permittee’s application makes a commitment on page 6 to remove all equipment from the site upon completion of the hole. All trash will also be removed and disposed of in proper fashion.

**Findings:**

The minimum regulatory requirements of this section have been met. This is a minor coal exploration application.

## **PUBLIC AVAILABILITY OF INFORMATION**

Regulatory Reference: 30 CFR 772.15;R645-203.

**Analysis:**

Ark Land Company submitted five copies of the notice of intent to conduct coal exploration activities to the Division of Oil, Gas, and Mining on February 12, 2004. All coals are owned by the State of Utah, SITLA. One copy of the application has been forwarded to the USFS, Manti-La Sal National Forest for review purposes.

**R645-203-200. Confidentiality.**

Ark Land Company has requested on page 8 of the minor coal exploration application under section R645-203-200 “that the Division not make any drilling information available for public inspection relative to coal seam thickness or quality. This information is considered crucial to Ark Land’s competitive rights”. This request is within Ark Lands legal rights, per R645-203-200.

**Findings:**

The minimum regulatory requirements of this section have been met.